

Tahoe Yellow Cress

Adaptive Management Working Group

Status Report for July 2017 through January 2018



Tahoe yellow cress (*Rorippa subumbellata*)

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https://www.fs.fed.us/wildflowers/Rare_Plants/conservation/success/rorippa_subumbellata_recovery.shtml

Introduction

Tahoe yellow cress (*Rorippa subumbellata* Roll.; TYC) is a rare plant that occurs only on the shoreline of Lake Tahoe in California and Nevada. Currently, TYC is listed as endangered by the State of California and critically endangered in Nevada. The U.S. Fish and Wildlife Service (USFWS) identified TYC as a candidate species for listing in 1999 under the Endangered Species Act of 1973, as amended. The USFWS removed TYC from the candidate list in October, 2015, citing the on-going implementation and success of the TYC Conservation Strategy (first developed in 2002, and revised and expanded in 2015) and long-term, proactive and collaborative conservation demonstrated by partner organizations to significantly reduce threats to Tahoe yellow cress.

The 2015 Conservation Strategy for Tahoe Yellow Cress builds upon information first presented in the 2002 Conservation Strategy and represents both a synthesis and significant expansion of TYC information including the following:

- A scientific review and analysis of the species ecology, habitat, and population dynamics, including current and future threats to TYC;
- Goals and objectives to coordinate conservation efforts among stakeholders to adaptively manage the species and integrate new information on the species' biology into future conservation and management activities;
- Actions for TYC management that are informed by scientific research and provide the basis for avoiding, minimizing, and mitigating the effects of human activities on TYC habitat and plants;
- Presents the TYC Stewardship Program to recognize the critical role of the private landowner in ensuring the long-term survival of TYC, to gain landowner participation, and to implement strategies that respect private property rights.

This status report serves as a progress update of the TYC Adaptive Management Working Group (AMWG). The status report includes 1) 2017 TYC Survey Results Summary and Threat Assessment and 2) TYC Conservation Strategy Management Action Updates.

1. 2017 TYC Survey Results Summary and Threat Assessment

The TYC survey is implemented under the adaptive management framework guidance of the 2015 TYC Conservation Strategy Management Goals and Actions.

- Goal 5 - Continue long-term monitoring using an adaptive survey strategy,
- Objective 5.1 (conduct lake-wide surveys of known and historical TYC sites)
- Objective 5.2 (maintain site viability rankings)

Highlights from 2017 TYC Survey Results Summary

Lake-wide Adaptive Survey Strategy

Lake-wide monitoring began with the survey of 36 sites in 1979 and has since expanded to 50 sites. The surveys are conducted in the first week of September by members of AMWG along with volunteers. Stem counts are used as the primary indicator of abundance. Lake-wide monitoring was conducted on an

annual basis until 2010, when the AMWG adopted an adaptive survey strategy such that surveys are now conducted every year when Lake Tahoe is at or above 6,226 feet (ft.). Lake Tahoe Datum (LTD) but only every other year at lower lake elevations. Prior to 2017, the last high-water condition survey (6,228 ft. LTD or above) was in 2011 when 6,494 stems were counted and 25 of 59 sites were occupied for an occupancy rate of 42%.

2017 Survey Results

- Lake elevation on September 5-6 was 6,229 ft. LTD
- 24 of 56 surveyed sites were occupied (43%)
- 5 sites were not surveyed: Meeks Bay Vista, Skyland, Sunnyside, Jameson, CTC Cascade (*i.e.*, access required a kayak)
- 6,453 stems counted

Table 1. All TYC survey sites, listed by ranking and ownership, with 2017 stem counts (NS = Not Surveyed).

SITE	OWNER	# Stems	SITE	OWNER	# Stems
CORE			LOW		
Upper Truckee East	CTC	343	Dollar Point	Private	8
Taylor Creek	USFS	171	Marla Bay	Private	0
Nevada Beach	USFS	60	Hidden Beach	NSP	0
Blackwood South	Placer Co	2300	Eagle Point	CSP	0
Ward Creek	Private	6	Tahoe Pines (Fleur Du Lac)	Private	583
Edgewood	Private	1185	Cave Rock	NSP	18
HIGH			Pope Beach	USFS	41
Tahoe Meadows	Private	195	Bijou (Timber Cove Lodge)	City SLT	0
Lighthouse	Private	514	Secret Harbor	USFS	0
Blackwood North	Private	0	McKinney Creek	Private	0
Tallac Creek	USFS	494	EPHEMERAL		
Rubicon Bay	Private	129	Sugar Pine Point State Park	CSP	0
4-H Camp/City Pump House	UNR	71	DL Bliss State Park	CSP	0
Eagle Creek/Avalanche	CSP	13	Emerald Bay Boat Camp	CSP	0
Logan Shoals/Vista	Private	0	Sand Harbor	NSP	0
Meeks Bay	USFS	0	Meeks Bay Vista	Private	NS
Cascade Creek	Private	0	Kiva Beach/Valhalla	USFS	0
Upper Truckee West	CTC	45	Skyland	Private	NS
MEDIUM			UNRANKED		
Baldwin Beach	USFS	140	Burnt Cedar Beach	IVGID	0
Tahoe Keys	Private	154	Chimney Rock	USFS	0
Regan/Al Tahoe	Private/ SLT	0	Elk Point	Private	0
Zephyr Cove	USFS/private	4	Skunk Harbor	USFS	0
Emerald Point	CSP	0	South of Edgewood	Private	19
Cherry St/Tahoe Swiss Village	Private	0	HISTORIC		
Tahoma	Private	NS	Kings Beach	CSP	0
Kaspian Campground	USFS	0	Crystal Point	Private	0
Timber Cove	Private	0	El Dorado	City SLT	0
Glenbrook	Private	0	Sunnyside	Private	NS
Roundhill	USFS	0			

Survey Planning

The Tahoe Regional Planning Agency originally scheduled the TYC survey training for August 28th at Nevada Beach. However, they were not able to attend. As a result, the USFWS funded Alison Stanton to coordinate the surveys, synthesize the data, and attend a few AMWG meetings. The funds were added to

an existing funding agreement from 2016. The award modification process began on August 1st, but the funding was not finalized until September 1.

Alison lead the TYC survey training on August 28, 2017, located at Nevada Beach. There were 11 participants who attended the training. Nevada Natural Heritage Program (NNHP) provided geo-tagging training and equipment (GPS units and USB for photo download).

Alison Stanton compiled TYC survey data and provided a summary report for the AMWG and Executive Committee. The number of occupied sites is used to assess the threat level in the Conservation Strategy Imminent Extinction Contingency Plan.

TYC Conservation Strategy: Imminent Extinction Contingency Plan

The Imminent Extinction Contingency Plan (IECP) is an integral component of the adaptive management framework. There are three levels that reflect the relationship between lake level and threat to TYC and each level has associated actions that may be taken to protect the species. Any and all of the actions described below may be recommended by the AMWG and reviewed and approved by the TYC Executive Committee. The TYC Executives operate within the given authorities and procedures of their respective agencies. TYC occupancy in 2017 is 43%, which is within Level 2: Moderate Threat.

Level 1: Normal TYC Operations

1. Conduct quarterly AMWG meetings and/or participate in the Environmental Improvement Program Working Groups;
2. Coordinate with the Executives;
3. Implement the adaptive survey strategy;
4. Maintain site viability rankings;
5. Maintain existing fences on public sites;
6. Maintain the TYC Stewardship Program;
7. Maintain a supply of seeds and container-grown TYC; and
8. Participate in requested reviews of shorezone projects within TYC habitat.

Level 2: Moderate Threat

When there is from 40% to 69% occupancy, all actions carried out under normal operations (below) continue along with the following:

1. Encourage fencing of all Core and High rank sites;
2. Develop guidelines for expedited/emergency fencing projects (*e.g.*, regulatory framework, design specifications, cost estimates) to protect TYC and its habitat;
3. Expand propagation efforts and plantings of container-grown TYC on public sites where possible;
4. Increase participation in the Stewardship Program and encourage additional planting of container-grown TYC on private sites;
5. Increase public awareness of TYC through www.tahoeyellowcress.org, local news outlets, social media, and the annual *State of the Lake Report*; and
6. Promote beach raking guidelines that minimize damage to TYC stems or habitat.

2. TYC Conservation Strategy Management Action Updates (AMWG Action Plan 2017)

The AMWG met in 2017 (July and November) and January 2018 to coordinate Conservation Strategy management and implementation. Funding needs were identified by AMWG and presented to the TYC Executives in March 2017. TYC Executive Committee met in May 2017 and responded to the AMWG with internal agency funding commitments.

Executive Committee internal agency funding commitments for TYC Conservation Strategy Management Actions (2017)

- AMWG Facilitation: The Lake Tahoe Basin Management Unit (LTBMU) Botanist to facilitate AMWG and represent LTBMU.
- Lake wide Survey Coordination: Over the long-term, LTBMU Botanist.
- TYC Website Update: NNHP and Tahoe Regional Planning Authority (TRPA) will look into long-term options.
- TYC Database Organization and Update: TRPA will investigate potential long-term options.
- TYC Stewardship Program: LTBMU can set up meeting with Nevada Tahoe Conservation District (NTCD) and Tahoe Lakefront Owners' Association (TLOA). Programmatic approach desired with involvement of NTCD.
- Growing TYC Nursery Stock: Nevada Division of Forestry (NDF) committed to remaining the lead and can provide staff support.
- TYC Seed Collection: LTBMU can coordinate with agencies collecting seed when compatible with September survey or otherwise
- TYC Low Water Adaptation Assessment and Guidelines: LTBMU can lead interagency team and have Alison provide training to LTBMU botanist. Land management practices could be addressed at a project scale.
- Genomic Analysis of TYC: Population structure could be pursued with other funding sources such as the State of Nevada's Lake Tahoe charitable license plate funds or California Tahoe Conservancy (CTC).

AMWG Progress Update for Conservation Strategy Management Implementation (July 2017 – January 2018)

- AMWG Facilitation: LTBMU Botanist facilitated AMWG meetings in 2017 (July and November), and January 2018.
- Lake wide Survey Coordination: In 2017, Alison Stanton coordinated training and survey with funding from U.S. Fish and Wildlife (USFWS). Alison prepared a report on the stability of TYC

population in 2017. The report identified conservation triggers met due to high water year in 2017 and specific actions needed to be taken.

In 2018, the TYC training, survey and reporting will be coordinated by the LTBMU Botanist with requests for interagency support to secure Zodiac™ boats by June 2018.

- TYC Threat Assessment: Level 2 Moderate threat implementation actions recommended:
 - Fences at Core and High rank sites have maintained longevity of TYC populations but need to be repaired (especially LTBMU sites).
 - Use of temporary fencing during high water years
 - Continue other Level 2 actions already in place (i.e., TYC Stewardship, brochures with beach raking guidelines, TYC planting, and public awareness).
 - Brochures are old and need to be updated.
 - LTBMU include TYC in interpretive program (e.g., Taylor Creek Visitor Center).

In anticipation of high water year in 2017, CTC closed some of their beaches until July 4th as a conservation/protection action for TYC.

- TYC Website Update: The NNHP will post 2017 survey map, appendix, and status report for public viewing (<http://tahoeyellowcress.org>). The NNHP will continue to manage the website through 2020. The site will be transferred over to a state server in the next 3 years, but will keep the same URL.
- TYC Database Organization and Update: TRPA and Alison Stanton will post TYC data on public website <https://laketahoeinfo.org/>. TYC data will be placed under the monitoring dashboard portal with the same structure as the Tahoe Resource Conservation District's Regional StormWater Monitoring Program (i.e., <https://monitoring.laketahoeinfo.org/>).
- TYC Stewardship Program:
 - In 2014, AMWG initiated a programmatic design for TYC Stewardship; however, the focus on the Conservation Strategy update and TYC de-listing from candidate status deferred the TYC Stewardship process.
 - In December 2017, LTBMU, NTCD and TLOA met to discuss a programmatic approach for TYC Stewardship. California's Safe Harbor Agreement (SHA) does not have a requirement for the financial assurance in perpetuity that is required by California Environmental Quality Act (CEQA). A consistent funding plan is necessary to conduct and maintain baseline survey and monitoring by NTCD and California Department of Fish and Wildlife (CDFW). TLOA offered to request seed money from their association. Long-term funding might be possible through pier fees from TRPA's Shoreline Plan per TLOA.
 - In January 2018, LTBMU, NTCD, CDFW, and TLOA met to discuss procedure for getting SHA and similar approach for Nevada. CDFW is preparing a SHA for internal review in mid-February 2018.
 - AMWG will review California SHA for TYC once CDFW has completed its internal review (including legal) process

- NTCD is coordinating with TRPA and NDF to develop a Memorandum of Understanding (MOU) for an approach similar to SHA for Nevada.
 - The AMWG is prepared to submit a grant proposal and Sarah Kulpa with USFWS continues to look for an announcement of the 2018 Section 6 (pre-listed species conservation) Request For Proposals.
 - Finally, for further TYC Stewardship funding approach, NTCD and Alison Stanton planned to submit an application to Tahoe Fund but there was insufficient time to compile the application (due January 31, 2018).
 - Public awareness is needed for TYC Stewardship Program and announcements of the California SHA and Nevada MOU will occur through LTOA newsletters and meetings, NDF, social media/website, local news, and *State of the Lake Report*.
- Growing TYC Nursery Stock: The AMWG will meet in April 2018 (after U.S. Geological Survey lake level forecast) to determine planting locations for TYC container plants. Currently, TYC plants are available from:
 - Washoe Tribe of California and Nevada has 60 TYC to be planted at Skunk Harbor, Nevada.
 - USFWS is managing 150-200 at University of Nevada Reno (leftover from Bijou project).
 - TYC Seed Collection: In 2017, the high water lake conditions changed the logistics of the survey. The AMWG chose to not collect seed in 2017, because it was a high water year and the TYC population was relatively small for collection.
 - TYC Low Water Adaptation Assessment and Guidelines: The LTBMU will continue to develop this action by leading an interagency team and having Alison provide training to the LTBMU botanist. Land management practices could be addressed at a project scale.
 - Genomic Analysis of TYC: This action will continue to be developed. Population structure could be pursued with other funding sources such as State of Nevada license plate funds or CTC.